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October 30, 1996

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Mr. William F. Caton  
Acting Secretary  
Federal Communications Commission  
Room 222  
1919 M Street, NW  
Washington, DC 20554

Dear Mr. Secretary:

Enclosed are summaries of the weekly discussions in the recent on-line seminar "Universal Service/Network Democracy," which took place from August 26 - September 27. The seminar involved teachers and librarians from all 50 states and Puerto Rico, bringing an important grass-roots perspective to the discussions of Universal Service. These summaries encapsulate the large body of information developed in the course of the seminar. The full text of discussions in the seminar have been submitted for your consideration in a separate filing. Please include the present material as part of CC Docket 96-45, in the matter of the Federal-State Joint Board on Universal Service. Also, please note that this material is conveniently available on-line at the Information Renaissance Web site,

<http://info-ren.pitt.edu/universal-service>

This material is respectfully submitted on behalf of Information Renaissance, a nonprofit organization which seeks to further the development of computer networks in support of education, community development and economic revitalization. Thank you for your consideration of this material.

Sincerely,

Robert D. Carlitz  
Executive Director  
Information Renaissance

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# **Universal Service/Network Democracy - Summaries**

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## **The Future of Network Democracy**

During the five week period of August 26 through September, 1996, Information Renaissance conducted an exercise in what it calls "Network Democracy." The on-line seminar entitled "Universal Service/Network Democracy" brought together more than 500 people with an interest in the Telecommunications Act of 1996 and its application to schools and libraries. Attendees represented all 50 states and Puerto Rico and included a preponderance of local teachers and librarians.

The task of the seminar was to inform this group about the rule making process currently under way at the Federal Communications Commission (FCC) and enable members of the group to express their views on the Universal Service provisions of the Telecommunications Act. Traditionally, federal rule making involves the publication of a notice of proposed rule making and the invitation of members of the public to respond within a certain time period. Replies to the original comments are invited after a brief period in which the comments are placed in public view.

Under the traditional arrangement neither the notice of proposed rule making nor comments submitted to the agency in question are circulated very widely. This situation is slowly changing as federal agencies begin to use the capabilities of the Internet. The FCC, for example, publishes its notices of proposed rule making on-line, so that an audience of millions can easily and quickly have access to it.

There are limits to the openness of current FCC procedures, however. Comments are made available for public viewing only in the FCC's Reading Room in Washington, and although it is possible to order paper copies of these comments, there is no authoritative list of information supplied to the FCC on any given topic except in the FCC's Reading Room, so it is impossible to remain current in a given proceeding without representation in Washington. This drastically limits the extent to which a public voice can be heard on issues before the agency.

The concept of Network Democracy is a simple one:

1. Advertise federal rule making on-line.
2. Solicit public comment via the Internet.
3. Make comments available on-line.
4. Provide the necessary course of public education so that all interested parties can make informed comments on the issues at hand.

Step 1 has already been made by the FCC. This agency does allow for informal comments to be filed via electronic mail, and some fraction of material submitted to the agency has been made available on-line. In the case of the Universal Service proceedings, however, there is outside the agency no authoritative list of materials that have been submitted, and those comments which are made available on-line are only those which have been voluntarily submitted to the agency. Furthermore, the procedures by which the FCC has made this material available are cumbersome to use (which is a by-product of the fact that electronic filings are voluntary and none too uniform in format).

What Information Renaissance has done in the Universal Service/Network Democracy seminar is to carry out all 4 steps listed above. Hypertext versions of relevant FCC notices were made available via the Information Renaissance site on the World Wide Web, which corresponds to step 1 listed above. Comments which had been submitted to the FCC in electronic form were converted to hypertext and placed on-line, and comments submitted only on paper were scanned, converted to hypertext and placed on-line as well. This took care of step 3 listed above and provided a massive archive of information on the topic of the Universal Service provisions of the Telecommunications Act. Not only did this provide this material to the public at large; for the first time there was available to FCC staff a means of rapidly searching this material for desired topics and words.

Given Information Renaissance's interest in reaching a grass-roots audience interested in the applications of the Telecommunications Act to schools and libraries, it was not sufficient simply to place all this material within easy reach of the public. There was a need for an organized discussion of the issues at hand and of the procedures followed by the FCC in developing its rules to implement the Telecommunications Act. This important educational step, which corresponds to step 4 on the list given above, was carried out over the five week period of the on-line seminar.

We will not attempt to summarize the content of the seminar in this note but refer interested readers to the material itself, which remains available at the Web site

<http://info-ren.pitt.edu/universal-service>

This site includes all of the material mentioned above plus the complete text of all discussions which took place in the seminar. These discussions are thoroughly indexed and organized for easy reading and rapid retrieval.

In the course of the seminar project staff were able to extract a number of significant lessons for the conduct of future such activities:

- There needs to be careful coordination of different on-line resources and adequate instruction in their use. The present seminar involves both electronic mail and World Wide Web access, and the

participants comfortable with both means of access found it easy to take part in the seminar.

- There need to be both a moderator and a facilitator in the conduct of such on-line activities. Information Renaissance provided one person who organized the overall material and provided weekly summaries of the ongoing discussions. This "moderator" also screened incoming messages to deflect administration questions away from the general discussion and, on rare occasions, to avoid the development of any heated confrontations among the participants. The facilitator worked on a personal level with individual participants, seeking out background information, looking for areas in which participants were having difficulty and urging broader participation.
- On-line surveys provide a useful means of focusing discussion and developing insights into the views of the overall group. Information Renaissance developed software to facilitate the generation and analysis of such surveys in the course of the seminar and received a considerable amount of positive feedback on their use in the seminar.
- If the FCC were to require electronic submission of all public comments, it would greatly reduce the cost of providing public access to materials such as those which were used in the present seminar. The cost of scanning paper copies and converting them to hypertext is at least five times as large as the cost of preparing material already in electronic format for on-line display. Given that all of the paper copies were originally produced in some electronic format, the expense and inconvenience of adhering to a paper format seems completely unnecessary.

In the final survey administered in the last week of the Universal Service/Network Democracy seminar participants indicated a strong desire to keep involved in the activities which had been initiated by the seminar. On a local level this involves contacts with other groups interested in the subject and expression of individual views to representatives at all levels of government.

On a broader level it seems desirable to maintain the momentum of public participation. Information Renaissance proposes the following specific steps:

- Keep material gathered for the seminar on-line at the Information Renaissance Web site listed above.
- Prepare a follow-up seminar if the FCC calls for further public comment on the issue of Universal Service for schools and libraries.
- Develop similar programs at the state level as the proceedings move from the FCC to individual state Public Utility Commissions.
- Use the group of people who have come together in this seminar as part of the FCC's mechanisms to verify the success of measures adopted in its rule making process in meeting the original legislative objectives of the Telecommunications Act.

Information Renaissance also proposes to extend the concept of Network Democracy to apply to other federal and state agencies. We are therefore seeking upcoming rules likely to be of broad public interest and amenable to consideration under the process developed in the present on-line seminar. It is significant to note that the broad level of public network connectivity which is promised by the Telecommunications Act under its Universal Service provisions for schools and libraries is precisely

what will be necessary for the application of the principles of Network Democracy to other agencies at the federal and state level.

Beyond the proof of concept of Network Democracy as applied to a broad range of federal and state rule making venues, we have specific suggestions for agencies wishing to adopt procedures of the sort that have been pioneered in the Universal Service/Network Democracy on-line seminar:

- The agency itself should take care of steps 1, 2 and 3 in the procedures given above. First, there should be public notice on-line in a readable and searchable on-line format. Second, public comment should be solicited in electronic format, preferably using one that can easily be converted to on-line display. These public comments should be placed on-line without delay after their receipt by the agency in question, using the same easily readable and searchable format in which the notice was given.
- Step 4 should probably be contracted to groups capable of supplying the technical expertise appropriate to the subject and unburdened by specific bias on the subject at hand. Any issue of substance will involve some degree of controversy. A group like Information Renaissance is able to provide moderators and facilitators who can deal with such controversy, much as a skilled classroom lecturer invites spirited discussion while keeping class interactions within the bounds of reasonable decorum. A more formal environment would stifle discussion, while a less formal one would invite chaos.

Information Renaissance believes that the Internet allows federal and state governments to redefine the meaning of citizen participation in government. Network Democracy is a tool which can enable the government to draw upon a vastly larger pool of expertise than has been previously available for its rule making efforts. By using the Internet government agencies can assure that their rule making process is open and fair and not limited solely to those groups and individuals which exist solely to influence processes of this sort.

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## Press Releases

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*For Immediate Release*  
*August 20, 1996*

Contact:

Robert Carlitz  
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### **An Internet First: Seminar on Universal Service/Network Democracy**

Information Renaissance is hosting a five week on-line seminar on the provisions of the Telecommunications Act which deal with Universal Service for schools and libraries August 26. The

seminar will address the Act's potential billion dollar a year subsidy for internet access for K-12 education, libraries and rural health care. The Act, passed last February, represents the first major revision of the 62 year old law.

For the first time teachers and librarians can be fully involved through online participation in the discussion regarding what technology is needed in local schools and libraries. Practitioners with hands on experience using network resources will be able to communicate their successes and their needs to federal policy-makers. Summaries of the online discussions will be submitted to the FCC for use in their decision about how students can best be served by the new Telecommunications Act.

The Universal Service/Network Democracy Seminar represents an important first for Network Democracy on the internet. The two-way nature of current high-speed data networks allows them to be used both as a means of disseminating information and of obtaining input from thousands of people at remote sites around the country or around the world. The Universal Service Seminar will bring together grass-roots practitioners of networking technology in our nation's schools and libraries with experts on telecommunications law and networking technology. The resulting synergy should maximize their impact upon our nation's educational infrastructure.

The seminar begins August 26 and runs through September 27. Complete information on the seminar and registration forms are available from the Information Renaissance Web site:  
<http://info-ren.pitt.edu/universal-service>

Major funding for the seminar is provided by The Heinz Endowments and the BellSouth Foundation with additional support from NYNEX and Pacific Bell.

Information Renaissance is a Pittsburgh nonprofit corporation which promotes the development of regional networking infrastructure in support of education, community development and economic revitalization.

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*For Immediate Release  
Pittsburgh  
September 24, 1996*

Contact:

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**Network Democracy A Reality**

Five hundred people in 50 states and Puerto Rico aren't leaving the future of telecommunications services for schools and libraries up to lobbyists and Washington insiders. They are participating in an Internet-based on-line seminar to debate issues and formulate comments to the Federal Communication Commission regarding the Telecom. Act of 1996.

For five weeks professionals in education, libraries, government and business have researched and discussed on-line the new Universal Service provisions for schools and libraries. Participants bring to the seminar over 2,000 person years of experience with network applications in classrooms and libraries -- more than all people involved in the preparation of corporate comments for the FCC on this issue. The seminar concludes September 27.

Participants in the Network Democracy seminar are reviewing comments filed with the FCC on the topic of Universal Service. Public access to these comments is provided via the Internet in conjunction with the seminar.

The seminar was created by Information Renaissance (IR), a non-profit organization based in Pittsburgh, PA. FCC Chairman Reed Hundt said the seminar is, "a great example of the way technology can increase communication, learning, and participation in public debate."

Not only does the seminar's concept of "Network Democracy" enable broad public participation in governmental proceedings, it is also very inexpensive, said Robert Carlitz IR executive director. Carlitz estimated the present effort cost less than 1% of what industry lobbyists have spent to advance their positions before the FCC.

"The seminar is a great way for people to hold this important dialog which has repercussions for every school and library in the country." Nanci Pass, Woodside Elementary School District, CA

"It is amazing! . . . this may be my only opportunity to provide input into the federal rule making activity." Bill Cosh, Wisconsin School Board Association

Support for the on-line seminar was provided by the American Micrographics Company, BellSouth Foundation, and The Heinz Endowments. Additional support came from Pacific Bell and NYNEX.

The Universal Service-Network Democracy seminar is located on the Internet:

<http://info-ren.pitt.edu/universal-service>

Visitors can review discussion archives, participants' contributions, survey results, filers comments to the FCC, and related resources.

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## **Summary of the First Week of the Seminar**

The seminar got off to a rapid start in its first week. There were nearly 100 postings to the seminar's

mailing list from over 50 of the seminar's participants. The people who posted the first 92 messages came from a broad range of participant groups:

- Schools and Libraries: 19 people, 25 messages
- Non-profit Organizations: 9 people, 17 messages
- Universities: 10 people, 19 messages
- State and federal government: 7 people, 7 messages
- Business: 6 people, 24 messages

Thanks to Laurie Maak for providing these statistics. I also want to thank everyone who has contributed to the discussion so far and to encourage those who have just been listening to speak up regularly in the upcoming weeks.

There will be an effort to focus the discussion on specific issues relating to the FCC's implementation of Universal Service provisions of the Telecommunications Act, and I will try to keep the discussion on-track in this direction. If I send you a note asking that you send a particular message as a private communication to the person to whose message you are responding, please understand that I'm not trying to keep anyone from contributing to the broader discussion but simply trying to keep that discussion focused, even though we are a very large and very diverse group of people.

The 100 messages posted in the seminar's first week are too broad to summarize very briefly, but a few threads stood out (at least in my mind):

- **Resale.** Although the Telecommunications Act contains explicit language discouraging the resale of subsidized telecommunications services, this topic generated a number of comments. We'll pick this topic up again later in the seminar, when we delve into issues of aggregating traffic and linking school and library networks into broader community networks.
- **Training.** Many people pointed out the need for adequate measures to familiarize new users with the technology and to provide ongoing user support. Since the Act refers to "telecommunications services", it may be problematic to apply any Universal Service support to this activity. We will explore this topic in more detail this week, since we'll be talking about the allowed and desired scope of the subsidies provided by the Universal Service Fund for schools and libraries.
- **Technical Support.** This is an issue similar to that of user support. Here, at least, there may be precedents for Universal Support for the maintenance of an installed facility. How far this could and should go is something we should try to resolve in this week's discussion.
- **Equity.** Several postings raised questions of whether Universal Service subsidies might exacerbate discrepancies between rich and poor school districts, on the one hand, or penalize those districts which have shown initiative in the application of technology, on the other hand. These are good questions to keep in mind as we proceed.
- **Educational Basis.** Several of the teachers in the seminar reminded us to focus upon the educational goals of telecommunications technology and to work to structure the Universal Service subsidies so as to best meet these goals. This is certainly a concern that we don't want to lose sight of as we dig deeper into the legal and technical issues that sometimes cloud this discussion.

There were two assignments given in the first week. One dealt with suggestions for topics to discuss in the upcoming weeks. Some of these topics are covered in the list just given; others will be summarized below.



The second assignment called for contributions to the seminar's on-line library of participants' contributions. These could be summaries of Comments, Reply Comments or Further Comments filed with the FCC, or brief position papers relevant to topics being covered in the seminar. These submissions are being processed now and will be placed on-line in the next few days.

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## Summary of the Second Week of the Seminar

The seminar continued in the rapid pace set in its first week. There were 62 postings from 37 different people, half of whom had not posted in the previous week. These people were divided among the various participant groups as follows:

- Schools and Libraries: 13 people, 26 messages
- Non-profit Organizations: 8 people, 12 messages
- Universities: 7 people, 11 messages
- State and federal government: 3 people, 3 messages
- Business: 6 people, 10 messages

Thanks to Laurie Maak for continuing to develop these statistics. I want to repeat my thanks to everyone who has helped to keep the discussion going on the complex issues with which we have been dealing. In the upcoming weeks I hope that an increasing percentage of the registered audience will add their voices to the discussion.

The principal topic for the second week's discussion had to do with the *scope* of Universal Service subsidies for schools and libraries. Several major points emerged. I'll list them in the same framework that I employed last week, adding new topics as appropriate:

- **Resale.** While there exist interesting examples in which school districts have developed self-sufficient networking operations financed by the resale of services, this is probably not a viable option for the majority of school districts.
- **Training.** Training or professional development are major concerns for the successful implementation of new telecommunications services for schools and libraries. Since these activities are typically carried out within a school district or library and are not services traditionally supplied by providers of telecommunications services, these are not plausible candidates for Universal Service support. Nonetheless it is clearly important that Universal Service subsidies for schools and libraries should be structured so as to encourage and facilitate the necessary component of training and professional development.
- **Technical Support.** This issue is similar to professional development in that it is not on the traditional menu of services offered by telecommunications providers. Unfortunately, it is also not an area that the majority of school districts and libraries are well-equipped to handle on their own. We probably need further discussion within the seminar on how best to approach this question.
- **Equity.** This remains a major concern of seminar participants, having been cited in about 20% of the recent messages on-line. Approaches to consider include subsidies targeted for rural areas and subsidies targeted for low-income areas.
- **Educational Basis.** Many of the participating teachers and librarians continued to emphasize the educational goals of a widespread deployment of telecommunications technology. Several

suggested that Universal Service subsidies should cover the evaluation of programs which employ this technology. This is another topic which deserves further discussion, even though it would appear at first glance to be far-removed from traditional telecommunications services.

- **Scalability.** Several participants emphasized the importance of building a basic infrastructure which can easily expand to serve the needs of all students, teachers and library patrons. The Internet provides a good example of how effective a scalable architecture can be.
- **Community Networks.** There is a strong sense in the group that Universal Service should mean access to network services from wherever people may be at whatever time they might be interested in accessing these services. For students and teachers, this means access from sites outside the schools, whether they be community centers, homes or other locations. For library patrons it means having multiple access points and facilities available around the clock.

The assignments for the second week were a continuation of those in the first week, namely to participate in the on-line discussion and to provide materials for the library of on-line resources. Many seminar participants have been working on these assignments, and you can see their results in the on-line discussions and the on-line library.

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## **Summary of the Third Week of the Seminar**

The seminar continued at the rapid pace set previous weeks. There were 59 electronic mail messages from 33 different people. These people were divided among the various participant groups as follows:

- Schools and Libraries: 15 people, 27 messages (46%)
- Universities: 4 people, 6 messages (10%)
- State and federal government: 5 people, 8 messages (14%)
- Business: 9 people, 18 messages (30%)

In addition to the seminar's e-mail-facilitated discussion a new component was added last week. This involved an on-line survey which highlighted topics relating to the previous week's discussion on the scope of Universal Service subsidies. The on-line survey proved to be an effective mechanism for increasing the percentage of seminar registrants who were able to make direct contributions to the discussion each week. So far 89 people have completed the survey, including 46 who had not previously participated in the on-line discussion. If you have yet to complete the survey, please do so now. It takes just a few minutes to fill out, and it helps address some of the important issues that we are trying to tackle in the seminar.

Results of the survey on the scope of Universal Service are now available on-line. The on-line summary of results will be updated periodically as more people complete the survey. In addition to a numerical tabulation of the results, we have also compiled the additional comments that people entered on their survey forms. You will find a number of insightful remarks among these comments.

Here is a brief overview of the survey results:

**1. Purpose:** How should we view the purpose of the Universal Service Fund for schools and libraries? Is it to provide equity of access to telecommunications services, or is it to establish a public right of access to such services?

Results were split, with nearly 2/3 defining the purpose as equity and 1/3 defining it as a public right. Many commenters felt that the question was ambiguous and suggested that Universal Service should serve both of these goals.

My own interpretation of these phrases was that a "public right" implies that all citizens should have access to the resource, while "equity" implies that there should be no disparities of access. Several of the commenters came up with better statements than this, and I would welcome further discussion of this point during the upcoming week.

**2. Educational Needs:** In terms of the needs of teachers, students and library patrons, what types of telecommunications services are of the current greatest interest to schools and libraries?

Almost everyone identified Internet Data Services as a major need. Approximately 40% cited Voice and Video. One commenter raised the issue of *digital convergence*, which is an important enough topic to merit separate discussion.

**3. Breadth vs. Depth:** Should the range of services covered by the Universal Service Fund be narrow, so that the magnitude of available discounts can be large, or should the range of services be broad, which would result either in smaller discounts or a larger Fund?

The majority (60%) of the respondents favor a broad fund with enough money to provide substantial discounts for all covered services.

**4. Services to be covered:** Which types of services should be eligible for subsidy under the Universal Service Fund?

Site Connectivity was mentioned by almost everyone. 70% listed Upgrades of Telecommunications Capabilities. Both of these items are items which are clearly eligible for Universal Service support under the Telecommunications Act. 50% of the respondents also cited Internal Wiring, Routers and Servers, and Technical Support. Since these are not services in the traditional province of telecommunications service providers, it may be more difficult to include them in Universal Service support, but there is obviously a strong interest in finding the funds for these essential items.

Please consult the on-line summary for a more complete picture.

Highlights of the additional comments from the surveys are as follows:

- Clarification of Universal Service as an equity issue or a public right.
- Using Universal Service to stimulate competition.
- Digital convergence - the coming together of previously disparate telecommunications services.
- Sources of Universal Service funding.
- Availability of "advanced" services to schools and libraries.
- Using Universal Service subsidies to leverage local funding.
- Cost as a barrier to access and equity.
- Removing barriers to public access to government (and other) information.
- Need of local school districts and libraries for assistance and guidance in technology

implementation.

These are all important points for us to consider. Many of them have shown up in our previous discussions, but their repeated mention serves to underscore their importance.

The principal topic for the third week's discussion had to do with the *allocation* of Universal Service subsidies for schools and libraries. This discussion was organized around a set of questions that were posed in the material placed on-line at the beginning of the week. Given the success of the on-line survey for issues of *scope* we'll be extending the discussion of allocation issues with another on-line survey in the upcoming week. Hence I'll give only the briefest summary of the responses received so far on last week's questions.

*Should there be cash grants or vouchers available directly to schools or school districts?*

The majority of comments favor discounted services rather than cash grants or vouchers. There is a fear that grants and vouchers would be harder for schools and libraries to administer than discounted services. Few people addressed the positive side of grants and vouchers, which is that they might allow more flexibility than discounted services.

*Should there be an "E-rate" (educational rate) defining special discounts for schools and libraries?*

Most people interpreted this as an alternative to grants and vouchers, and it received a number of positive comments. The phrase "E-rate" refers to a specific proposal for free connectivity for schools and libraries, something that gives many people pause, since there is a fear of having groups subscribe to a free service whether they need it or not. I would like to encourage further on this topic.

*How should one define a bona fide request for telecommunications services? What minimal justifications should a school, library or school district have to offer in support of such a request?*

This question was raised because of language in the Telecommunications Act which requires that requests from schools and libraries be certified as *bona fide*. The majority of respondents favor leaving this matter to local school districts and library systems, although there is a recognition that many such groups may lack the information and knowledge to make wise choices in this area. This is the other side of the coin of the issues relating to technical support and staff development that we have discussed previously.

*Should Universal Service subsidies extend to groups which provide educational materials or support for educational organizations, such as universities and colleges or community centers?*

This idea has received a lukewarm reaction in comments so far. The majority oppose this as a dilution of the Universal Service fund and an extension well beyond its intended scope.

A new on-line survey will allow for additional input on these issues in the course of the present week.

In addition to the topics listed above, there were a number of other threads of discussion which took place on-line. Of particular note were the following:

- *The relative merits of graphical user interfaces (GUI) vs. plain text.* While several people advocated limiting Universal Service subsidies to plain text services, others pointed out that GUIs enormously reduce training costs and extend the potential audience for on-line services.
- *Wireless technologies.* Enthusiastic postings from advocates of new wireless technologies were met with scepticism about the effective reach of such technologies and the ease with which they can be managed by most schools and libraries. Clearly this technology offers much promise, but as with all technologies, it can't be viewed as a one-size-fits-all solution.
- *Free e-mail.* There were several mentions of Internet services which offset the cost of e-mail accounts through paid advertisements. Services of this type don't really address the infrastructure issues which are the province of the Telecommunications Act. They can't scale to serve whole-school populations, and they are inherently inefficient in the way they use telecommunications infrastructure. Nonetheless they are a very attractive means of introducing people to on-line services and could play a role in initiating such activities in areas where there are not otherwise readily accessible.
- *Telecommunications services for the homeless.* Several people discussed the practicality of providing such services through schools and libraries.
- *Job skills through the use of telecommunications.* Several people approached this important issues from different directions - one having to do with the SCANS report and the other having to do with how the availability of telecommunications services in schools and libraries will produce a workforce better able to make use of these services in an effective manner in the workplace.

I hope the preceding brief summary doesn't distort the positions presented during the previous week's discussion. As always, you should consult the original material for the authoritative word on these issues.

The assignments for the third week were a logical extension of previous assignments, namely to participate in the on-line discussion, to provide materials for the library of on-line resources and to complete the on-line survey. We have already discussed the surveys in some detail and have summarized the on-line discussion. You can look directly at the full text of the on-line discussions and the many contributions to the on-line library. We appreciate the effort that people have been putting into the seminar and urge you to continue this work in the next two weeks.

## Summary of the Fourth Week of the Seminar

The seminar continued at the rapid pace set previous weeks. There were 53 electronic mail messages from 36 seminar participants. These people were divided among the various participant groups as follows:

- Schools and Libraries: 18 people, 29 messages (55%)
- Universities: 5 people, 9 messages (17%)
- State and federal government: 5 people, 5 messages (9%)
- Business: 8 people, 10 messages (19%)

In addition to the seminar's e-mail-facilitated discussion there was a new on-line survey on the subject of the allocation of Universal Service subsidies. So far 36 people have responded to this survey, the results of which are available on-line. Also available on-line are the detailed comments which survey respondents offered on some of the survey questions. This survey will continue to be available for additional people to fill out in the upcoming week.

Here is a brief overview of the survey results to date:

**1. Mechanisms:** What mechanism should be used to provide Universal Service subsidies to schools and libraries?

Slightly over 50% of the respondents favored a 100% discount "E-rate" with roughly 20% supporting cash grants and 20% supporting discounts on selected services. A strong majority favored some discount mechanism over cash grants or vouchers.

**2. Bona Fide Requests:** What minimal justifications should a school, library or school district be required to offer in support of requests for subsidized telecommunications services?

The most broadly-supported response to this question (offered by 50% of the respondents) was that requested services should support a real educational need. 44% of the respondents argued that any request from an authorized individual should be regarded as *bona fide*. 44% also favored district-approved technology plans. Small percentages (in the 20%-25% range) supported state-approved plans, progress toward goals of the Telecom Act, and demonstrated knowledge of technology options. While state-approved plans did not gain broad support in the survey, there was extensive discussion of this issue in this week's e-mail submissions, as noted below.

**3. Extent:** Should Universal Service subsidies extend to groups which provide educational materials or support for educational organizations, such as universities and colleges or community centers?

There was nearly a 50-50 split on this issue, with several people offering detailed comments on the topic.

**4. Equity:** How can the Universal Service Fund insure equity of access for all schools and libraries?

This question may not have been clearly-phrased. One third of the respondents selected "other" and provided detailed comments; 30% specified a baseline subsidy; 25% supported per capita subsidies; and 22% supported income-based subsidies. But only 5% mentioned population density as a factor. I had intended this as shorthand for service in rural areas. In many e-mail contributions there has been strong support for connectivity in rural areas and for the need for special attention to the needs of these areas. And detailed comments from the survey tend to underscore this viewpoint.

Please consult the on-line analysis for a more complete picture. Since a relatively small number of people have filled out the form so far, these results should be regarded as tentative. Please fill out the survey now if you have not already done so.

Highlights of the detailed comments from the survey are as follows:

- The mechanisms used to provide Universal Service subsidies to schools and libraries should be such as to encourage transmission efficiencies and competition among service providers. Subsidies which simply provide monopoly carriers with another assured revenue stream could be counterproductive if they simply raise telecommunication rates for the same community that is receiving the subsidies.
- There needs to be some assurance that Universal Service funds are leveraged to benefit their intended recipients. Some form of educational assessment should be tied to a continuation of any proposed subsidies.
- Colleges and universities can serve important roles as trainers and disseminators of technology practice. But subsidies for collaborations involving schools, libraries and universities or colleges should perhaps be limited to services purchased by the schools and libraries participating in the collaboration.
- Equity is a major issue for rural areas, where low population density and harsh geography can combine to make the cost of services far higher than in urban areas. Presently services such as ISDN, which is becoming commonplace in urban areas, are either unknown in rural areas or priced far above the cost of an equivalent number of POTS lines. (One ISDN line can carry data traffic equivalent to that of approximately 4 28.8 kilobit modems.)
- The issue of equity is closely tied to who administers the Universal Service Fund. Previously the Fund has been administered by the National Exchange Carrier Association. This arrangement would be inappropriate and a conflict of interest under the new Universal Service mandate, which calls upon the fund to do far more than simply allocate resources among the various carriers.

The principal topic for the fourth week's discussion had to do with the *aggregation of services* and *competition in the provision of services*. Several questions were offered to guide the discussion:

*What examples exist of effective community collaborations?*

This topic generated more discussion than we have seen on any other topic in the seminar. Many contributors cited examples of successful collaborations and regarded such activities as essential for the sustainable use of telecommunications in local schools and libraries. Only through such collaborative ventures can adequate support be provided and can services be aggregated so that schools and libraries can purchase affordable connectivity.

*Does the Telecommunications Act promote such collaborations or endanger them?*

Contributors emphasized the need for broad community collaborations. In Week One of the seminar there was much discussion of how effective such collaborations can be and how short-sighted it would be if the Act's Universal Service provisions were implemented in a manner which discouraged such collaborations.

*How can an enhanced competitive environment help schools and libraries? Are there new services likely to result? Is dramatic price competition likely to occur?*

One contributor pointed out the need to balance collaboration, which supports the public interest,

with competition, which often uses profit as the sole measure of success. Several contributors argued that there is little competition in most rural areas, and hence one cannot argue that competition alone will provide for the affordable and equitable distribution of telecommunications resources. And one contributor noted that discounts funded by mandated rate increases are inherently non-competitive in nature insofar as they simply assure existing service providers a new revenue stream.

*What structures exist to facilitate needed community collaborations in the development of telecommunications infrastructure? Is this activity typically driven by school districts, municipal governments, community groups, libraries or other organizations?*

A variety of examples were offered in the on-line discussion. A common feature of all these examples is a buy-in at the local level. Wherever state-planned initiatives have been successful, it's been where they have achieved local support and understanding in their deployment. The present week's discussion will provide further examples of the successful application of telecommunications technology.

In addition to the topics listed above, there were a number of other threads of discussion which took place on-line. Several of them represented continuations and conclusions of the previous week's discussions, which covered issues such as:

- Wireless technologies
- Access to free e-mail
- *Bona fide* requests

Topics new to the present week's discussion included the following:

- *The merits of state technology planning.* Several nice examples of successful statewide initiatives were presented. It's unclear how broadly duplicated such efforts might be. A key feature, as noted above, was the existence of local buy-in. Without this feature, state plans threaten simply to increase the bureaucratic load on a local school district. What states can do quite effectively is to provide checklists for local planners and to help promulgate standards for technology implementation.
- *The limits of technology planning.* There is an obvious point which several contributors underscored - that it makes no sense to require district planning if there isn't going to be any funding for a district's plan, once completed. This suggests that an RFP process might be an effective mechanism for the distribution of available funds, since it incorporates some measure of planning but links it explicitly to the distribution of funds.
- *Cost savings through networking technology.* It was pointed out that efficiencies in record-keeping and information transfer can partially offset the cost of educational networks. This, in fact, was the original justification for a number of statewide networking efforts. The broader topic of how networks can save money is one that bears further discussion in the seminar.
- *The demise of NPTN.* It was noted with regret that the National Public Telecomputing Network has



entered bankruptcy. This organization had popularized the concept of Freenets, and its financial difficulties are perhaps indicative of a broader problem with the funding and sustainability of community networking efforts. A well-structured Universal Service Fund should help address this problem.

As always, you should consult the original material for the authoritative word on the issues mentioned above.

The assignments for the fourth week were a continuation of previous assignments, namely to participate in the on-line discussion, to provide materials for the library of on-line resources and to complete the on-line survey. You can look directly at the full text of the on-line discussions and the many contributions to the on-line library to see how this activity has been progressing. We appreciate the effort that people have been putting into the seminar and urge you to continue this work in the seminar's concluding week.

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## Summary of the Fifth Week of the Seminar

In the final week of the On-line Seminar there were 38 electronic mail messages from 27 seminar participants. These people were divided among the various participant groups as follows:

- Schools and Libraries: 15 people, 23 messages (60%)
- Universities: 3 people, 3 messages (8%)
- State and federal government: 3 people, 3 messages (8%)
- Business: 6 people, 9 messages (24%)

The principal topic for the fifth week's discussion had to do with the *integration of Universal Service subsidies with existing services* and the *coordination of the Universal Service proceedings with other proceedings*. Several questions were offered to guide the discussion:

- What successful telecommunications projects have you been involved with?
- Did these projects depend upon any special telecommunications rates? If so, give a brief description of these rates and indicate whether you think these rates might be jeopardized by new Universal Service subsidies. (This could happen if, for example, state PUCs were to decree that new subsidies supersede old rate structures.)
- Do your projects depend upon any particular tricks of the trade? If so, describe these imaginative applications of telecommunications technology, and indicate whether these applications might not be possible in the environment of new Universal Service subsidies.
- What are specific areas in which ongoing projects might benefit from new Universal Service subsidies?
- Are there projects currently in the planning stages whose viability will depend upon the structure of new Universal Service subsidies? If so, indicate how the subsidies should be structured to assure the success of these new projects.

These questions elicited a large amount of discussion and a number of specific examples of successful network development projects. The projects cited ranged from individual school projects to statewide networks and included collaborations involving schools, libraries, local governments and businesses ranging in size from small startups to major telecommunications providers. An obvious lesson from this discussion is that there is no "one size fits all" solution to the networking needs of schools and libraries. Universal Service provisions that are too rigid run the risk of upsetting successful arrangements currently in place. Examples were cited in which rigid state tariff structures have delayed the implementation of projects with broad corporate and public support. The broad range of successful projects indicates that there are many opportunities for the application of Universal Service to meet the networking needs of schools and libraries and provide stable long-range support for these organizations.

Several contributors expressed their concerns about the mechanics of implementing new Universal Service subsidies. At the state level there have been cases in which expected contributions at the state level have not been forthcoming. And several contributors raised the issue of possible untoward consequences of including Internet Service Providers in the pool of recipients for Universal Service funding. Specifically, there were fears that the present competitive market might be threatened and that the price of Internet connectivity might rise.

As always, you should consult the original material for the authoritative word on the issues mentioned above.

In addition to the seminar's e-mail-facilitated discussion there was an on-line survey requesting responses on the conduct of the seminar itself. So far 134 people have responded to this survey, the results of which are available on-line. Also available on-line are the detailed comments which survey respondents offered on some of the survey questions. This survey will continue to be available until a majority of seminar participants has responded. We will be sending out reminders to all seminar participants who have not yet responded. This information will be useful in crafting other activities of this type, whether for future telecom regulations or rule-making by other federal and state agencies.

Here is a brief overview of the survey results to date:

**1a. Topics:** How would you describe the topics cover in the seminar?

45% of the respondents regarded the seminar's topics as valuable, and nearly 60% regarded the topics as relevant. A small percentage felt that the range of topics was too broad to cover or that the issues were too complex to deal with.

**1b. On-line Materials:** Which on-line materials did you find to be useful?

The weekly summaries were the most popular item, chosen by 67% of the survey respondents. Participants' contributions were also selected by 48% of the respondents, while the repository of comments to the FCC and the archive of useful documents were each cited by 34% of the respondents. A smaller percentage (25%) of respondents mentioned the archive of on-line discussions, but since the majority of seminar participants received this material by electronic mail, the on-line archive may have appeared as redundant.

**1c. Surveys:** What was your opinion of the surveys?

46% of the respondents regarded the surveys as a good way to assess views of the whole group, and 34% viewed them as a useful adjunct to the on-line discussion.

**2a. Organization:** How did you regard the organization of the seminar?

A high percentage (72%) felt that the seminar's organization was just right, 26% felt it was too loose, a view which received additional support in comments attached to some of the surveys.

**2b. Moderation:** The seminar's mailing list was set up as a moderated list, with the moderator reviewing all traffic and adding occasional editorial comments. How did you regard this aspect of the seminar?

A significant majority (85%) regarded this as a strong point of the seminar, with only 13% regarding the process as too open and only a handful regarding it as too constraining.

**2c. Duration:** The seminar took place in a five week period. How would you describe this scheduling?

There was a split here. Half the group felt that the length was just right, a quarter thought it was too long, and another quarter thought it was too short. On the average one must conclude that the seminar's length was reasonable.

**2d. Time required:** How would you characterize the time required for you to participate in the seminar?

One third of the respondents felt that the time required was reasonable; one third felt that the time required was excessive, but necessary; and one fifth felt that it was simply too much.

**2e. Access:** The seminar was organized so that material would be accessed through a combination of e-mail and the World Wide Web. How did you access this material?

A strong majority (68%) used e-mail and Web access.

**3a. Achievement:** Have you achieved what you hoped to accomplish in the seminar?

Positive responses dominated on this question. 60% of the respondents achieved part of what they had hoped to accomplish; 16% exactly what they had hoped to accomplish; and 12% achieved more than they had expected to accomplish.

**3b. Interactions:** Have you interacted privately with other people registered for the seminar?

There was a split here - 35% yes and 45% no, with 20% expecting to initiate such interactions in the future.

**3c. Participation:** Have you written to the FCC or other public officials in relation to the Telecommunications Act of 1996?

There was a split here as well - 37% yes and 45% no, with 18% expecting to do so in the future.

**3d. Recommendations:** Would you recommend this type of seminar to other people in future?

Response here was very positive: 51% would recommend the seminar to other, and 44% would also participate in another such seminar.

Please consult the on-line analysis for a more complete picture. Please fill out the survey now if you have not already done so.

Highlights of other comments from the survey are as follows:

- It will be valuable to keep the on-line materials available in the future.
- Participants have been sharing information from the seminar with other groups in their communities.
- Focussed discussions were more productive than the initial tendency to look to the FCC for solutions of *all* problems pertaining to school and community networking.
- Questionnaires would have been a useful mechanism for eliciting participants' views on topics discussed in the seminar.
- Some technical details may have been beyond the grasp on some participants.
- The seminar helped create an awareness of the needs of other people and communities.
- Enforcement of a one postings per person per week limit would have allowed more people to participate.
- The seminar came too late in the FCC's process to be of much significance.
- It would be useful to provide a forum for continuing the discussions started in the seminar.

In closing the Universal Service/Network Democracy On-line Seminar, I would like to thank the staff and volunteers at Information Renaissance who have helped to make the seminar work, the contributions from funders who responded to our request for support on an unusually short time schedule, and the thousands of hours of work that have been put in by our 500-plus participants. The group that has been formed to participate in the seminar is itself a valuable resource in the implementation and verification of the Telecommunications Act of 1996. Information Renaissance will endeavor to keep this activity alive in one or more of the following possible venues:

- Scheduling of another on-line seminar if the FCC calls for further public comment on Universal Service issues.
- Maintenance of the on-line repository of comments submitted to the FCC on these topics.
- Development of a mechanism to verify the successful implementation of provisions of the Telecommunications Act.
- Involvement with proceedings at the state level to deal with intrastate provisions of the

Telecommunications Act.

If you have suggestions to offer on the direction of this work, please contact [info@info-ren.pitt.edu](mailto:info@info-ren.pitt.edu) with your advice. Thanks again for your participation, and good luck in hundreds of local telecommunications efforts in which members of the seminar are currently involved.

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